Lin, Cindy

From: Cindy Lin <Lin.Cindy@epamail.epa.gov>
Sent: Monday, March 10, 2014 2:59 PM
To: Lin, Cindy
Subject: Fw: Malibu Creek TMDLs - information and request
Attachments: Pond-et-al_Coal-mining-effects-on-macroinverts_2008_JNABS.pdf; WQ-effects-on-BMI-measures_v2012-03-12.pdf

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-----Forwarded by Cindy Lin/R9/USEPA/US on 03/10/2014 02:58PM -----
To: Cindy Lin/R9/USEPA/US@EPA, <jon.butcher@tetratech.com>
From: "Dougall, Jan" <jdougall@lvmwd.com>
Date: 03/15/2012 09:44AM
Cc: "Orton, Randal" <ROrton@LVMWD.com>
Subject: Malibu Creek TMDLs - information and request

(See attached file: Pond-et-al_Coal-mining-effects-on-macroinverts_2008_JNABS.pdf)
(See attached file: WQ-effects-on-BMI-measures_v2012-03-12.pdf)

Hi Cindy & Jon,

Information

I've attached some information that may be useful to you for the development of the Benthic Macroinvertebrate Bioassessment TMDL for reaches in Malibu Creek watershed.

The first attachment is the academic journal article "Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools" describing the results of an EPA study on the effects of coal mining valley fill on downstream macroinvertebrate communities. The paper documents the causal linkage between water quality and macroinvertebrate multi-metric indices (MMIs). The EPA found that "most biological metrics and the MMIs had substantially stronger correlations with specific conductance and individual ions than with the mining-related metals or individual habitat variables." In fact, the EPA concluded that "specific conductance is the best predictor of the gradient of conditions found downstream of alkaline mine drainage and valley fill sites in the Central Appalachians." The EPA then used these

findings to develop "A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams" (EPA/600/R-10/023F, March 2011) which acknowledges that human disturbance resulting in elevated conductivity in stream systems "dominated by salts of Ca^{2+}, Mg^{2+}, SO_4^{2-} and HCO_3^- at a circum-neutral to alkaline pH" will negatively impact macroinvertebrate communities, and that specific conductivity is the simplest and most effective predictor of that impairment.

The second attachment is a two page comparison of water quality conditions in Malibu Creek watershed to water quality values from the EPA paper by Pond, *et al*., titled "Natural water quality influence on macroinvertebrate and algal bioassessment measures." This is a reasonable comparison, since MMIs used in the EPA study are comparable to the southern California IBI and pH and ionic dominance in Malibu Creek watershed streams are similar to those downstream of mined sites in West Virginia. In this brief summary, we show that specific conductance in Malibu Creek watershed is as high or higher than downstream of mined sites in West Virginia, and that concentrations of those ions identified as contributing the most to macroinvertebrate toxicity downstream of mined sites are about as high or higher in Malibu Creek watershed. Malibu Creek's northern tributaries are dominated by the Modelo Formation, a depositionally unique subset of the Monterey Formation, which is California's primary petroleum source rock. Coal-source rock and petroleum source rock both produce high conductivity and ion toxicity. The EPA's conductivity benchmark report recognizes that high conductivity water impairs macroinvertebrate communities when the conductivity results from human activity. However, if specific conductance and ionic concentrations are naturally elevated, as they are in flows from Malibu Creek's undeveloped northern tributaries, then macroinvertebrate community structure may be a natural reflection of natural conditions. We have done a considerable amount of research on the geology of Malibu Creek watershed and would be glad to provide additional information on the rock and its effects on water quality.

Request

We are looking at the Sedimentation / Siltation listings in Malibu Creek watershed in advance of EPA development of the TMDL. Because the listings were made prior to 2006, our current understanding of the listings is limited. We have requested information on the listing from the State Water Resources Control Board, and they directed us to the Los Angeles Regional Water Quality Control Board. Multiple requests to the Regional Board have gone unanswered. Could someone from your staff provide us with the sedimentation / siltation listing data for Malibu Creek watershed streams and answer the following questions?

Questions:

Can we obtain the listing data (Data Reference)?

What was the Water Quality Objective/Criterion?

What is the Objective/Criterion Reference?

What was the Evaluation Guideline?

What was the Guideline Reference?

Thank you very much for your consideration of this information during the development of Malibu Creek watershed's benthic macroinvertebrate bioassessment TMDL. And thank you in advance for your help in providing information on the sedimentation / siltation listings.

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